THE FUTURE OF INCENTIVES AS A LEVER TO INCREASE HIV TESTING IN THE WORKPLACE: EVIDENCE FROM A FIELD EXPERIMENT

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Thesis presented in partial fulfilment of the requirements for the degree of Master of Philosophy (HIV/AIDS Management) at Stellenbosch University

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March 2010

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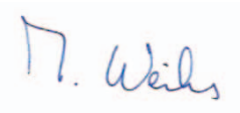

Abstract

Voluntary HIV testing in the workplace was offered to two groups of employees; in one case informing about a reward offered for voluntary testing and in the other case not.

Both groups were asked to complete a questionnaire before the testing. The study's hypothesis was that incentives significantly increase employees' willingness to participate in on-site voluntary counselling and testing.

A t-test for significance of difference between both groups' means was done and results indicate that the offer of incentives significantly increases the uptake of voluntary testing in the workplace.

Advantages of these results are discussed in this thesis.

Opsomming

Vrywillige MIV toetsing is aan twee groepe werknemers aangebied; in die een geval is ‘n beloning geheg aan die vrywillige toetsing en in die ander geval nie.

‘n Vooraf opgestelde vraelys is by beide groep voor die tyd afgeneem. Die hipotese van die studie was dat aansporing beduidend sou bydra tot die gewilligheid om deel te neem aan MIV toetsing in die werksplek.

‘n T-toets vir beduidendheid van verskille tussen gemmideldes is tussen die twee groepe gedoen en resultate dui daarop dat die aanbied van ‘n beloning beduidend bydra tot die beter opname van vrywillige toetsing in die werksplek.

Voordele van hierdie resultate word in die tesis bespreek.

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1. Introduction

The idea that money drives our behaviour is so much part of our culture that we rarely step back to think about it. Two-for-one deals on anything from food products to clothing, cut-prices airline tickets or the promise of big annual bonuses drive our consumer and work-life choices. So the question arises, why not use money to drive health behaviour in the fight against HIV&AIDS in the workplace?

The HI virus impacts not only on the internal systems of an individual's body, but also on all aspects of society like family, community and businesses. South Africa has one of the highest workforce HIV&AIDS statistics in the world. The International Labour Office, ILO (2006:86), estimated in 2005 that 3.6 million South African labour force participants in the age between 15 and 65 were HIV positive. UNAIDS reported that in a South African Sugar Mill, HIV infected employees have visited a clinic 20 times and have taken 17 full days of sick leave during the two years preceding their retirement. The cost of absenteeism, provision of hospital and medical care, and training and wages for new employee replacements was about R8,465 per year and per HIV positive employee (UNAIDS, 2000:15). The mining company Gold Field South Africa estimated that HIV&AIDS would have added US$10 per ounce gold produced without any intervention (Augustyn, 2009:5).

Facing these consequences, many South African companies implement HIV&AIDS workplace programmes (WPPs). One crucial element of these

workplace interventions is voluntary counselling and testing (VCT)[1] for employees to acknowledge their serostatus. Testing results allow companies to determine the HIV prevalence rate within their workforce and so be able to address company's HIV&AIDS economical impacts more effectively. Knowledge of serostatus through VCT can be a motivating force for HIV positive and negative employees alike to adopt safer sexual behaviour, which enables HIV positive employees to prevent their sexual partners from getting infected and those who test seronegative to remain negative (Baggaley et al, 2002:7). As free antiretroviral therapies become more available in South Africa, VCT is the necessary step for employees and their families to access treatment.

South African law imposes that attendance to VCT is voluntary; this means that the decision to have an HIV test must be entirely the choice of the individual. To reach high VCT uptake, companies have to find effective ways to motivate as many as possible employees to go testing on-site and acknowledge their HIV status. One possibility is the use of incentives. Incentives can be offered to steer people's choices in certain directions.

Small and Medium-Sized Enterprises (SMEs) tend to lack the experience to implement VCT interventions successfully (Fraser et al. as cited in Mundy et al., 2004:177) and consequently might not have a lot of experience how to motivate their employees to go testing. This could lead South African SMEs to invest in VCT without enough consideration of the efficiency of factors affecting VCT uptake. The result could be a waste of limited resources. A review of literature failed to identify research about how financial incentives support participation in VCT amongst employees in South African SMEs. The paper "Paying the

[1] "VCT", "HIV testing" and "testing" are used as synonyms in this paper.

Patient" finds that financial incentives are effective in encouraging people to perform clearly defined, time limited, simple behavioural tasks (Jochelson, 2007:2). As on-site VCT is a clearly defined, time limited, simple behavioural task, Jochelson's statement gives a hint that financial incentives could be effective in encouraging employees on-site VCT uptake.

This field experiment investigated if incentives significantly increase employees' willingness to participate in on-site VCT. After a literature review and presentation of experiment and findings, the advantages of the results will be discussed.

2. Research objectives

The objectives of this research paper were to:

- Find out if the hypothesis "incentives significantly increase employees' willingness to participate in on-site Voluntary Counselling and Testing" is held, following Jochelson's statement that financial incentives are effective in encouraging people to perform clearly defined, time limited, simple behavioural tasks (Jochelson, 2007:2).

- Contribute to the process of finding out if incentives should become a best practice tool to be included in SMEs' HIV&AIDS WPPs by providing data that allow managers and researchers to estimate the lever incentives worth R3000 have on employees' on-site VCT uptake in similar settings.

3. Incentives for HIV testing in the workplace: A literature review

The “commissioning and behavioural change” final report states that the idea of “nudging” the public to make healthier choices is gaining favour (Boyce at al., 2008:12f). The concept of ‘nudging’ acknowledges that we should all have freedom of choice, but purports that employers should encourage or ‘nudge’ employees to do the right thing (Thaler and Sunstein, 2008). ‘Nudging’ could be an effective way to encourage healthier behaviour.

The attraction of financial incentives as a ‘nudging’ tool in VCT lies in their potential to increase the on-site HIV testing rate in a cost effective way. VCT, as a crucial part of companies’ HIV&AIDS WPPs, allows companies to determine the HIV prevalence rate within the workforce and so be able to address company’s HIV&AIDS economical impacts more effectively. The “Debswana - A global benchmark” study revealed that the prevalence survey served as a turning point in Debswana’s approach to company’s fight against HIV&AIDS (UNAIDS, 2002). VCT is also the primary access point to HIV&AIDS clinical care and psychological support (Rogers as cited in Mundy, 2004:178), and provides an opportunity for education and motivation to modify behaviour aimed at reducing the risk of HIV&AIDS transmission (Lancet as cited in Mundy, 2004: 178). As free antiretroviral therapies become more available in South Africa, VCT is the necessary step for employees and their families to be able to access treatment and to improve their quality of life. Hence, the more ‘nudged’ employees go for VCT and know their HIV status, the more the costs of HIV&AIDS impact on companies might be reduced.

From an economic perspective, an incentive is an offer of something of value, sometimes with a cash equivalent and sometimes not, that is used to influence the payoff structure of a utility calculation so as to alter a person's course of action (Grant, 2002:111). The company offering the incentive wants to make the choice to test for HIV in the workplace more attractive to the employees responding to the incentive than any other alternative (not testing or testing outside the company). It is a form of trade that involves voluntary action by all parties involved. The result is supposed to be beneficial to all parties concerned. If these conditions were not met, the trade would simply not occur (Grant, 2002:111).

From a psychological point of view, when motivation to change is low, a financial incentive offers an expectation of a reward for making the choice to change that in itself might not be sought after (Jochelson, 2007:3). In our case, the motivation to change and to do an on-site HIV test is, for a considerable number of employees, a choice that in itself is not sought after. Combined with the WPP awareness around HIV&AIDS, the offer of incentives for HIV testing is a reward that conveys feed back about competence and may enhance intrinsic motivation for making the choice to participate in company's VCT and reinforce individuals sense of autonomy (Cameron at al. as cited in Jochelson, 2007:9).

Finally, from a "neuro-economic" point of view, incentives might activate the striatum, the reward centre of the brain, ordering the release of dopamine, a substance that gives the body a positive feeling. At the same time, the brain control system, the anteriore cingulum, responsible for making reasonable decisions, is inhibited (Ehlers at al., 2009:47). Humans exposed to financial incentives are very seducible because they activate the rewarding system in the

brain (Ehlers at al., 2009:47). Employees are worried about the idea of somebody else winning the incentive. They want at least as much as their colleagues, never less. Going for VCT is for good causes: Taking care of one's health and family's future and fighting HIV&AIDS. Employees think that incentives are offered by the company to reward them and not to betray them. Employees want to participate because everybody else is participating as well. From this perspective, incentives could be a trick to increase VCT uptake. Research still has to define how strong this neurological effect is.

Very little is published on the use of financial incentives in companies to influence employees' VCT uptake although incentives are frequently used in the health sector (for example to change behaviour around alcohol, smoking, drugs and nutrition like described in Jochelson (2007)), and although the researcher has observed that many companies in South African automotive sector regularly make use of incentives in their VCT campaigns.

A case study conducted on six randomly selected South African SMEs investigated the impact and management of HIV&AIDS in the workplace (Vass et al., 2006). The study sought to document the experiences of SMEs in managing the HIV&AIDS burden and to draw out possible lessons and best practice. The case study observed that because of declining participation in VCT one of the companies put up an incentives programme as one of six tools to encourage employees to be tested, involving a voucher system and chocolates (Vass et al., 2006:37). But no results on the effect of the used incentives on VCT uptake were given.

Rebecca Thornton states that many argue that there are huge monetary and psychological costs to learning HIV status but finds in her study that these barriers can be easily overcome (Thornton, 2005). After being tested for HIV, individuals in rural Malawi were randomly assigned monetary incentives to return for their results. Without any monetary incentives, demand for knowing HIV status was moderate: 39% of those tested returned to learn their HIV results. However, randomly assigned monetary rewards had large and significant effects on learning HIV results and increased overall attendance to counselling centres by over 100%. Thornton concluded that these results have strong policy implications for designing interventions to increase testing, especially as antiretroviral therapies become more available.

An HIV counselling and testing programme funded by the American Centre for Disease Control and Prevention focused “on increasing HIV testing of Persons at High Risk in Communities of Color” in the United States of America (Cooper, 2003). The target population were individuals who are at increased risk for contracting HIV&AIDS due to their high-risk sexual behaviour, drug-taking behaviour, and past/current exposure to sexually transmitted diseases. All individuals were informed that they would receive an incentive upon their return to get their HIV results. The study found that 50% of all clients tested did so because they were aware of the post-test incentive. Of the 700 individuals tested for HIV, 595 of those individuals returned for post-test counselling sessions due to the incentives offered. When asked what brought them to the agency for testing, 85% of the population replied that they were informed that they could get a grocery store certificate for getting tested. Cooper concluded that a majority of clients who request HIV testing do so because they are aware of the incentives offered upon their return for the post-test counselling session.

Although many people do not agree with the use of incentives, they are useful when drawing high-risk individuals to get tested and learning HIV test results (Cooper, 2003).

In these two last studies, VCT was done in two separate steps: The pre-counselling session that included pre-test counselling and blood or saliva collection, and a second session, where people were informed about their serostatus and received post-test counselling. Financial incentives were only used to reward people to participate in the second step of VCT. They were not used to encourage people to do the HIV test. They were also not used in a company setting.

Jochelson found that health programmes that rely on financial incentives as a lever to promote healthier behaviour are attractive as they are simple and easy to implement but her study “Paying the patient” does not include observations on financial incentives used to encourage employees to participate in on-site VCT in SMEs.

Her review suggests that financial incentives are effective in encouraging people to perform clearly defined, time limited, simple behavioural tasks (Jochelson, 2007:2). Jochelson’s statement gives a hint that financial incentives could be effective in encouraging employees to perform the clearly defined, time limited, simple behavioural task of VCT.

Jochelson states that financial incentives may be useful as one element of a multi-faceted programme that addresses the complexity of individual, social and economic factors that affect human behaviour.

She concludes that further research is needed to understand when incentives are likely to be most effective in encouraging the adoption of healthier behaviours and wether long-term incentive schemes can enable people to maintain changes in behaviour (Jochelson, 2007).

She found that following factors may contribute to the success of financial incentives: value, timing, social support and skills (Jochelson, 2007:6f). This study's experiment only considers one specific setting of the above four factors as described in the following.

Evidence suggests that the size of the incentive is important (Jochelson, 2007:6). Jochelson found that where interventions catered to low income groups, it is evident that the financial incentive lowered the barrier of entry to the healthier lifestyle. Even where studies did not specify the socio-economic breakdown of their target population the size of an incentive was still significant. The design of this study's experiment considered this evidence when determining the size of the incentives.

Lucier et al. suggests that both the value and the immediacy of feedback are important reinforcer of behaviour change (Lucier at al. as cited in Jochelson, 2007:7). For this reason, it was made sure in this study that all experiment participants knew that the incentives would be distributed the day after the HIV testing.

Jochelson states that lifestyle change is complex because it may challenge accepted behaviour in an individual's support and social network. There is extensive literature that shows that individuals adapt their behaviour to meet

what they imagine are the expectations of people significant to them (Jochelson, 2007:7). In both companies' HIV&AIDS WPPs, the peer educators had been selected as respected and significant colleagues. They were also selected because of demonstrated role model behaviour in fighting HIV&AIDS. All peer educators fully supported the VCT campaign throughout the whole programme. These peer educators announced the incentives in this experiment.

Individuals need skills and confidence to enact a proposed change, particularly with lifestyle behaviours. In this study, all participants had been in several awareness trainings done by companies' peer educators about HIV&AIDS. They all were involved in the set-up of the HIV&AIDS policy and knew its content. They all were informed about how VCT works and the existing referral systems for those employees and family members that might test HIV positive.

In her quantitative (descriptive, statistical, and content) analysis of data study "Factors affecting the uptake of voluntary HI&AIDS counselling and testing (VCT) services in the workplace", Janet Mundy wanted to identify the factors affecting VCT uptake amongst workers in medium-sized enterprises (Mundy, 2004).

She found that perception of company support, proximity to people that have, or have died of HIV&AIDS and VCT confidentiality were among factors found to have influenced uptake, but permanent employment status was the most significant factor associated with test participation.

Mundy's research also indicated that HIV&AIDS WPPs must ensure that post-VCT benefits are understood, are accessible to all staff and their families,

involve active employee representation, and seek to reduce the social and political barriers to HIV&AIDS care and support access if they want to be successful. Even if these criteria are fulfilled, influences and interventions that encourage one employee to participate may fail to encourage, or even deter others.

Her study also found that knowledge alone is insufficient to change VCT behaviour and encourage regular testing, the ultimate aim of best-practice HIV&AIDS interventions.

Mundy did not investigate if financial incentives are a significant factor associated with HIV test participation.

4. Research problem

The aim of this research paper is to determine if the use of financial incentives in SMEs leads to a significantly greater percentage of employees going for on-site VCT. It should provide data that allow managers and researchers to estimate the lever incentives worth R3000 have on employees' on-site VCT uptake in similar settings. Ultimately, it wants to contribute to the process of finding out if incentives should become a best practice tool to be included in SMEs' HIV&AIDS WPPs.

In essence, the research problem to be discussed and analysed is: **Do incentives significantly increase employees' on-site VCT uptake?**

The term “VCT”, in this experiment, is defined in terms of on-site pre-test and post-test counselling, associated with employees testing and acknowledging their HIV test result. All steps of VCT are done in one session and individually by an external accredited service provider. It is impossible in a field experiment to reliably study the effect of incentives on employees’ VCT uptake directly as many factors affect employees choice to go for VCT in medium-sized manufacturing companies (Mundi at al., 2004:176): Perception of company’s support, proximity to people that have, or have died of HIV&AIDS, VCT confidentiality and permanent employment status are amongst factors found to have influenced VCT uptake. This multitude of factors make it difficult to reliably isolate and quantify the effect of incentives on employees’ choice to go HIV testing if employees were asked directly after the HIV test. But if an employee, two weeks before company’s announced HIV testing day and after being informed about the offer of incentives for HIV testing, is more willing to participate in VCT than when he/she is not informed about the incentives, it is possible to say that employee’s attitude towards VCT uptake has changed because of incentives. In this case, an increase in VCT uptake is inferred from an increase in employee’s willingness to participate in VCT.

The term “incentives” is defined as tangible financial items rewarding employees directly for the outcome of knowing their HIV status.

The term “employee” is defined as the shop-floor employee (permanent and non-permanent staff) that worked in shifts A and B in both companies during the experiment.

“Small and Medium sized Enterprises (SMEs)” are defined as South African automotive supplier companies that have more than 50 and less than 250 employees (permanent and non-permanent staff together).

At the time of the experiment, the researcher had implemented a comprehensive HIV&AIDS workplace programme embedded in company’s wellness programme in both companies. Both programmes were at the same stage of progress when the experiments took place and, in both companies, on-site VCT was offered for the first time to employees.

To determine if incentives affected employee’s willingness for voluntary counselling and testing, employee’s willingness to participate in VCT was operationalised and expressed by asking them to answer the question “If the company would organise its on-site wellness day tomorrow, I would go testing for HIV&AIDS tomorrow”.

5. Method

Two companies, named company V and company M in the following, were randomly selected through a draw out of five SMEs the researcher was working with at the time of the experiment. All SMEs were at the same stage of HIV&AIDS WPP implementation. They all had in common, that no HIV&AIDS WPP had been implemented in the past and no on-site VCT had ever been offered to employees. All companies belonged to the same industrial sector and had similar skill requirements.

A field experimental research design was used as a quantitative approach to allow discovering the effects (willingness to go for VCT) of presumed causes (incentives) in a real company life setting (Christensen, 2007:87).

5.1. Participants

In both selected companies, the experiment population was exclusively composed of all shop-floor employees and equalled the sum of all shop floor employees present in two shifts A and B. All shop-floor employees had equally participated in an HIV&AIDS workplace programme the researcher was implementing at the time of the experiment.

Company V had a total staff of 100 persons from which all 66 shop-floor employees were targeted for the experiment. Company M had a total staff of 90 persons from which all 65 shop-floor employees were targeted for the experiment. On both experiment days, no leave or sick leave was reported.

In both companies, the composition of shift A and shift B could not be influenced. Employees were allocated to these shifts according to the needs of production by the production managers that were not aware of the experiment.

In company V, production manager's allocation lead to a big difference in the amount of employees in shift A and B. The morning shift A was composed of 48 employees, the afternoon shift B was composed of 18 employees. The mean age in shift A was 29,3 years and 32,7 years in shift B. There were 62.5% males in shift A and 66.7% males in shift B. 62% were singles in shift A and 56% in

shift B. 60.4% of shift A had matric or lower education compared to 61.1% for shift B. 39.6% were contractors in shift A compared to 38.9 in shift B. A comparison of both shifts show that apart from the group size differences of shift A and B, both groups have similar demographics and can be considered as comparable.

Company M had a shift A composed of 34 employees and a shift B composed of 31 employees which together makes up a population of 65. The mean age in shift A was 37.2 years and 32.6 years in shift B. There were 52.9% males in shift A and 71% males in shift B. 41.2% were singles in shift A and 64.5% in shift B. 73.5% of shift A had matric or lower education compared to 54.8% for shift B. 50% were contractors in shift A compared to 58.1% in shift B. A comparison of both shifts show that apart from gender composition, differences in marital status and education, both groups have similar demographics and can be considered as comparable.

A comparison of shift A and B in both companies shows that there are small demographics differences between the two samples in both companies. For practical purposes it was assumed that they are comparable and data were treated as such.

All companies had, at the time of the experiment, the same HIV&AIDS programme implementation level including awareness around HIV&AIDS and VCT, policy implementation, knowledge about free existing care and treatment options for them and their families (including free antiretroviral treatment in public clinics or through medical aid) and free availability of condoms. The HIV&AIDS programme was embedded in a Wellness Programme. It can be

assumed that all experiment's participants were at the same HIV&AIDS WPP training level in both companies. All employees were aware that free on-site VCT and other health tests were offered on a wellness day scheduled two weeks later. The information about the offer of incentives as a reward for participating in on-site VCT had not been spread in both companies before shift B employees started working the day of the experiment.

5.2. Measuring Instruments

Questionnaires were used to ask a specific set of 15 questions on how employees felt about various factors of their company's wellness programme (see annexure A). The same questionnaire was used in both companies. Originally, the questionnaires were designed to allow feed-back on the quality of companies' wellness programme which included the HIV&AIDS WPP. Company's and funders' logos were printed on the questionnaire. As companies wished to stay anonymous, logos are not visible in annexure A. Participants were asked to give their own opinion and were informed about the voluntariness and confidentiality of the questionnaire. The questionnaire stated that all participants would receive a pen for completing the questionnaire.

The relevant question for this study's experiment was hidden as question number ten: "If the company would organise its on-site Wellness Day tomorrow, I would go testing for HIV&AIDS tomorrow."

At any time of the experiment, participants were not informed about the experiment. To verify if the samples that answered the questionnaire (shift A

and shift B) were representative for the population, socio–demographic data were collected in part one of the questionnaire. This made it possible to compare shift A with shift B in both companies.

For question 1 to 15 a Likert scale was used. The Likert scale is also called the summative scale, as the result of a questionnaire is often achieved by summing numerical assignments to the responses given (changingminds.org, 2009). This scale is an ordered, one-dimensional scale from which participants chose one option that best aligns with their view. Five options were used. Assertions were used, with which participants may agree or disagree to varying degrees. In scoring, numbers from 1 to 5 were assigned to each option.

1 = Strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

The results of the questionnaires have been achieved by summing the numerical assignments to the responses given.

To inform shift B employees in both companies about the offer of incentives as a reward for on-site HIV&AIDS testing, a flyer was designed (see annexure B). This flyer informed shift B employees about the possibility to do a free on-site HIV test on wellness day. It announced the date of company's wellness day (approximately fourteen days later) and informed in detail about the incentives that could be won. All employee that would get tested on wellness day would be

entered into a lucky draw with a chance to win a R2000 gift voucher as first prize, a R500 voucher as second prize and another ten R50 vouchers. The flyer also reminded employees that HIV testing on-site is free on wellness day, that knowing their status can save their lives, that their HIV-status is confidential and that discrimination on basis of status is illegal.

5.3. Procedure

The researcher was not involved in distributing or collecting the questionnaires. During the experiments, he was not visible to the participants. He was however present in the company to discreetly observe and give explanations to the peer educators that distributed the questionnaires. These explanations were given in a private meeting with the peer educators present in the shift previous to the questionnaires' distribution. These peer educators were not informed about the experiment at any time of the experiment.

Companies' management was informed about the experiment and the procedures. Management was explicitly asked not to talk about the experiment to any other staff member.

The experiment was first done in company V and two days later in company M. Company V and company M are completely separate companies. They are situated 50 kilometres from each other and one can assume that company V's employees did not have contact to company M's employees between the experiments.

In both companies, all shift A employees received the questionnaire. The questionnaires were distributed by a team of two peer educators without any further information about incentives. Both peer educators were not aware of the experiment and the future use of incentives to reward employees that participate in company's on-site HIV testing. They were briefed by the researcher just before shift A began that the questionnaire was part of a survey to get shop floor employees' feed-back on the HIV&AIDS WPP and so be able to improve it. They were asked to brief shift A employees about the participation conditions precisely and to mention the pens as rewards for completing the questionnaire. The completed questionnaires were collected in a sealed box by the same peer educators during the shift. Every participant received a pen as reward.

The same questionnaire was also distributed by two other peer educators to all employees of the next shift, shift B, but only after all shift B employees had been well informed by the same peer educators about company's decision to organize a ruffle the day after company's wellness day in which all employees that will have gone for HIV testing on wellness day (planned approximately two weeks later) will participate and have a chance of winning one R2000 or one R500 or ten R50 gift vouchers. Both peer educators were not aware of the experiment at any time of the experiment. They were briefed just before the beginning of shift B that the questionnaire was part of a survey to improve company's HIV&AIDS WPP. They were asked, first, to brief staff about the ruffle by using the specially designed flyers (see annexure B), secondly to inform about the survey's questionnaire and, thirdly, to mention the pens as rewards for participating in the survey. The peer educators collected the completed questionnaires during the shift in a sealed box and distributed pens as rewards.

6. Results

The results show that there is a significant difference between willingness to participate in on-site voluntary counselling and testing when incentive are offered and when no incentives are offered.

All targeted 66 employees in company V and all target 65 employees in company M returned completed questionnaires.

In company V, 47% of shift A employees agreed or strongly agreed to go for on-site HIV testing if it was offered in the company the next day. 77.78% of shift B employees agreed or strongly agreed to go for on-site HIV testing if it was offered in the company the next day. This means that in company V, 62% more shift B than shift A employees agreed and strongly agreed to go for HIV testing if it was offered on-site the next day.

When repeating the same experiment two days later in company M, 50% of shift A employees agreed or strongly agreed to go for on-site HIV testing if it was offered in the company the next day. 74.19% of shift B employees agreed or strongly agreed to go for on-site HIV testing if it was offered in the company the next day. This means that in company M, 48% more shift B than shift A employees agreed and strongly agreed to go for HIV testing if it was offered in the company the next day.

In both companies, shift B had proportionally more employees that were willing to participate in on-site HIV testing if it was offered in the company the next day.

A t-test for significance of differences between the means of the two groups was calculated as described in the following.

In this study, two shifts were administrated different information, so the study had a between participants design. There was one independent variable, with two levels consisting in providing information about incentives or not. The different shifts A and B were given different amounts of information, so there were two groups of subjects. Therefore, according to the decision tree for selecting the appropriate statistical test (Christensen, 2007:414), the appropriate statistical test for analysing the data is an independent sample t-test.

Table 1 shows the t value obtained for company V.

Table 1: *Results of t-test company V*

Hypothesis test results: **μ_1 : mean of I would go testing tomorrow, shift A** **μ_2 : mean of I would go testing tomorrow, shift B** **$\mu_1 - \mu_2$: mean difference** **$H_0 : \mu_1 - \mu_2 = 0$** **$H_A : \mu_1 - \mu_2 \neq 0$** **(with pooled variances)**					
Difference	**Sample Mean**	**Std. Err.**	**DF**	**T-Stat**	**P-value**
$\mu_1 - \mu_2$	**-0.6111111**	**0.301734**	**64**	**-2.025331**	**0.047**

From table 1 it is clear that there is a significant difference between the means of the two groups with t(64)=-2.02533, $p<0.05$ or $p=0.047$. The two-tailed p-

value equals 0.047. By conventional criteria, the difference between the means is considered to be statistically significant.

The null hypothesis can thus be rejected. The experiment's hypothesis "incentives significantly increase employees' willingness to participate in on-site voluntary counselling and testing" is held in company V.

Table 2 shows the t-value obtained for company M.

Table 2: *Results of t-test company M*

Hypothesis test results: **μ_1 : mean of I would go testing tomorrow, shift A** **μ_2 : mean of I would go testing tomorrow, shift B** **$\mu_1 - \mu_2$: mean difference** **$H_0 : \mu_1 - \mu_2 = 0$** **$H_A : \mu_1 - \mu_2 \neq 0$** **(with pooled variances)**					
Difference	**Sample Mean**	**Std. Err.**	**DF**	**T-Stat**	**P-value**
$\mu_1 - \mu_2$	**-0.5616698**	**0.278857**	**63**	**-2.01419**	**0.0483**

From Table 2 it is clear that there is a significant difference between the means of the two groups with $t(63)=-2.01419$, $p<0.05$ or $p=0.0483$. The two-tailed p-value equals 0.0483. By conventional criteria, this difference between the means is considered to be statistically significant. The null hypothesis can thus also be rejected in company M. The experiment's hypothesis "incentives

significantly increase employees' willingness to participate in on-site voluntary counselling and testing" is held.

The results show that there is a significant difference between willingness to participate in on-site voluntary counselling and testing when incentive are offered and when no incentives are offered in both companies.

7. Discussion

The experiment was designed in a way to assure, as far as it is possible in a field experiment, that the only relevant difference between shift A and shift B was due to the independent variable: the information given to group B about the offer of incentives for participating in on-site VCT.

The hypothesis "incentives significantly increase employees' willingness to participate in on-site VCT" was held confirming Jochelson's statement that financial incentives are effective in encouraging people to perform clearly defined, time limited, simple behavioural tasks (Jochelson, 2007:2) as VCT was in this case.

The fact that both experiments lead to similar results in both independent companies reinforces this research conclusions.

The results of this field experiment indicate that there are strong reasons to believe that financial incentives used to increase employees' on-site VCT uptake should have a bright future in SMEs. In company V, 62% and in

company M, 48% more shift B than shift A employees agreed and strongly agreed to go testing for HIV if it was offered in the company the next day. If the assumption is made that these rates are applicable for companies' actual VCT uptake, than managers and researchers can estimate the lever incentives worth R3000 have on the increase of employees' on-site VCT uptake in similar settings. In companies V and M, this lever is considerable as 62% and 48% increase of VCT uptake were realised with just R3000 invested in incentives in each company, a very small fraction of the programmes' total costs. With these results, this experiment can contribute to the process of finding out if incentives should become a best practice tool to be included in SMEs' HIV&AIDS WPPs.

For a significant number of employees, incentives easily helped to overcome the barriers of HIV testing, confirming Thornton's statement (Thornton, 2005). The results therefore have strong policy implications for designing interventions to increase HIV-testing in SMEs in South Africa.

As stated by Jochelson, the use of financial incentives to promote VCT uptake was simple and easy to implement.

Originally, the questionnaires were designed to allow feed-back on the quality of companies' wellness programmes which included the HIV&AIDS WPP. The analysis of employees' answers to these questions reveals that the majority of employees were benefiting from the HIV&AIDS programme, were increasing their knowledge about HIV&AIDS, trusting the company and HIV&AIDS policy and satisfied with the programme and work of the peer educators. These results, that have not statistically been evaluated, confirm Jochelson's finding that in both companies V and M financial incentives offered were useful as one

element of a multi-faceted programme (the HIV&AIDS WPP) that addresses the complexity of individual, social and economic factors that affect human behaviour.

This experiment brought some useful data for one specific setting (as described in chapter 3). The existing evidence base is too limited for us to make definitive conclusions about the conditions under which incentives are effective. Further research is needed to understand when financial incentives are likely to be most effective in encouraging on-site VCT uptake.

Following limitations have to be considered when interpreting the results.

Although the companies V and M were randomly selected from those available in a cluster of five companies the researcher was implementing HIV&AIDS WPPs at the time of the experiment, this study is limited to the types of companies that the researcher was working with: small and medium-sized South African automotive supplier companies that have more than 50 and less than 250 employees (permanent and non-permanent staff together) and their environment.

Both companies were implementing comprehensive HIV&AIDS WPPs for the first time, were nearly at the end of the implementation process and offered free on-site VCT for the first time. The effect of incentives in other circumstances, for example in the second year of an HIV&AIDS WPP, might be different and would have to be investigated.

Varying the four factors, value, timing, social support and skills, identified by Jochelson (Jochelson,2007:6f) could significantly change the effect of incentives on employees' on-site VCT uptake. This study's experiment only considers one specific setting of these four factors.

No influence on the composition of shift A and shift B in both companies could be taken. The assignment of employees cannot be considered as random selection of research participants. Employees were assigned to both shifts according to the needs of production by the production managers. The criteria for this selection are not known to the experimenter. This way of assignment, does not follow a procedure for randomly assigning participants to experimental treatment conditions (see for example Christensen, 2008:267f). Therefore, it does not provide maximum assurance that a systematic bias does not exist in the selection process and that companies' production managers' choice lead to the selection of samples that are representative of each company's targeted total population. This field experiment did not allow any other procedure. The comparison in point 5.1 showed that there are small demographic differences between the two samples in both companies. These differences are considered to be small but could lead to a bias of the results. This study did not investigate if any correlations exist between demographic data and the dependent variable.

Another source of bias might have come from a participant effect. Participants' behaviour might have been influenced by the perceptions and motives they bring with them. Answering the experiment question, they might have been motivated to present themselves in the best possible light or vice versa. It can be assumed that this bias was reduced by running the experiment in two

independent companies and using an anonymous questionnaire. It can also be assumed that this participant effect was neutralised between both shifts.

The researcher did not interfere at any time in data collection. The peer educators that distributed and collected the questionnaires and briefed the participants might be a source of experimental attribute error. The field experiment did not allow control over this effect as the researcher did not select these peer educators. It can be assumed that this effect is reduced by the fact that the experiment was run in two independent companies.

It was impossible to reliably study the effect of incentives on employees' VCT uptake directly because of the reasons stated in chapter 4. The assumption was made that if an employee, a few weeks before company's announced HIV&AIDS testing day, after being informed about the offer of incentives is more willing to participate in VCT than when he/she is not informed, then employee's attitude towards VCT uptake has changed. In this case, an increase in VCT uptake is inferred from an increase in employee's willingness to participate in VCT. The experiment does not measure the actual effect of incentives on VCT uptake or on acknowledging the serostatus like in Thornton's experiment (Thornton, 2005). The results of this experiment only allow estimations about the actual VCT uptake.

The questionnaire included following three questions indirectly related to on-site VCT:
Question nine: It is important that I know my HIV status as soon as possible.
Question eleven: I prefer to go testing outside the company.

Question fourteen: It has more advantages to do an HIV&AIDS test in the company than in public clinics.
For these questions, no significant difference between the means of the two groups could be calculated. The offer of incentives did not produce a significant effect on these statements.

8. Conclusion

The research hypothesis “incentives significantly increase employees’ willingness to participate in on-site Voluntary Counselling and Testing” is held using a significance level for a two tailed test of 0.05 in both companies. This confirms Jochelson’s statement that financial incentives are effective in encouraging people to perform clearly defined, time limited, simple behavioural tasks (Jochelson, 2007:2) as VCT was in this experiment.

On-site VCT being a crucial part of HIV&AIDS WPPs, the results of this experiment indicate that there are strong reasons to believe that incentives should become a best practice tool and so have a bright future.

For a significant number of employees, incentives easily helped to overcome the barriers of HIV-testing, like Thornton found in her experiment (Thornton, 2005). These results have strong policy implications for designing interventions to increase HIV testing in South African SMEs.

In company V, 62% and in company M, 48% more shift B than shift A employees agreed and strongly agreed to go HIV testing if it was offered in the company the next day. Assuming that these rates are applicable for companies’

actual VCT uptake, managers and researchers can estimate the lever incentives worth R3000 have on the increase of employees' on-site VCT uptake in similar settings. In experiment's companies, this lever is considerable as 62% and 48% increase of VCT uptake were realised with just R3000 invested in incentives in each company, a very small fraction of the programmes' total costs.

As stated by Jochelson (2007), the use of financial incentives to promote VCT uptake was simple and easy to implement in both companies.

This study confirms Jochelson's finding that financial incentives are useful as one element of a multi-faceted programme (the HIV&AIDS WPP) that addresses the complexity of individual, social and economic factors that affect human behaviour.

This experiment produced useful data for one specific setting present in both companies, still the existing evidence base is too limited to make definitive conclusions about the conditions under which incentives are effective. Further research is needed to understand when financial incentives are likely to be most effective in encouraging on-site VCT uptake in SMEs.

References

Augustyn, J., 2009. Strategic Human Resource Management. Lecture Script, MPhil HIV&AIDS Management. African Centre for HIV&AIDS Management, University of Stellenbosch.

Baggaley, R., Oberzaucher, N., 2002. HIV Voluntary Counselling and Testing: a Gateway to Prevention and Care [electronic version]. UNAIDS, Geneva. data.unaids.org/Publications/IRC-pub02/JC729-VCT-Gateway-CS_en.pdf.

Boyce, T., Robertson, R., Dixon, A.,2008. Commissioning and Behaviour Change [electronic version]. The King's Fund, London.

Changingminds.org, 2009. Likert Scale. Online document. Retrieved 12.12.2009 from http://changingminds.org/explanations/research/measurement/likert_scale.htm

Christensen, L.B., 2007. Experimental Methodology. Tenth Edition. Allyn and Bacon, Inc., Boston, USA.

Cooper, S.L., 2003. HIV Counseling and Testing Programs Strive Through the Use of Incentives [electronic version]. National HIV Prevention Conference Atlanta, Georgia, USA — July 27 - 30, 2003. http://www.aegis.org/conferences/nhivpc/2003/MP-028.html

Ehlers, F., Hoppe, R., Kneip, A., Scheuermann, C., Supp, B., 2009. Der Crash-Test. Der Spiegel, 34(2009), 45-54. Spiegel-Verlag Rudolf Augstein GmbH&Co.KG, Hamburg.

Grant, R., 2002. The Ethics of Incentives: Historical Origins and Contemporary Understandings [electronic version]. Economics and Philosophy, 18 (2002), 111–139. Cambridge University Press.

Jochelson, K., 2007. Paying the Patient, Improving Health using Financial Incentives, Kicking Bad Habits [electronic version]. The King's Fund, London.

Mundy, J., Dickinson, D., 2004. Factors Affecting the Uptake of Voluntary HIV&AIDS Counselling and Testing (VCT) Services in the Workplace [electronic version]. Wits HIV/AIDS in the Workplace Research Symposium 29/30 July 2004. University of the Witwatersrand, Johannesburg. http://www.wbs.ac.za/download_files/faculty/lecturing_staff/prof_david_dickinson/2004/Dickinson_2004_6.pdf

Thaler, R., Sunsteun, C.R., 2008. Nudge. Yale University Press, London.

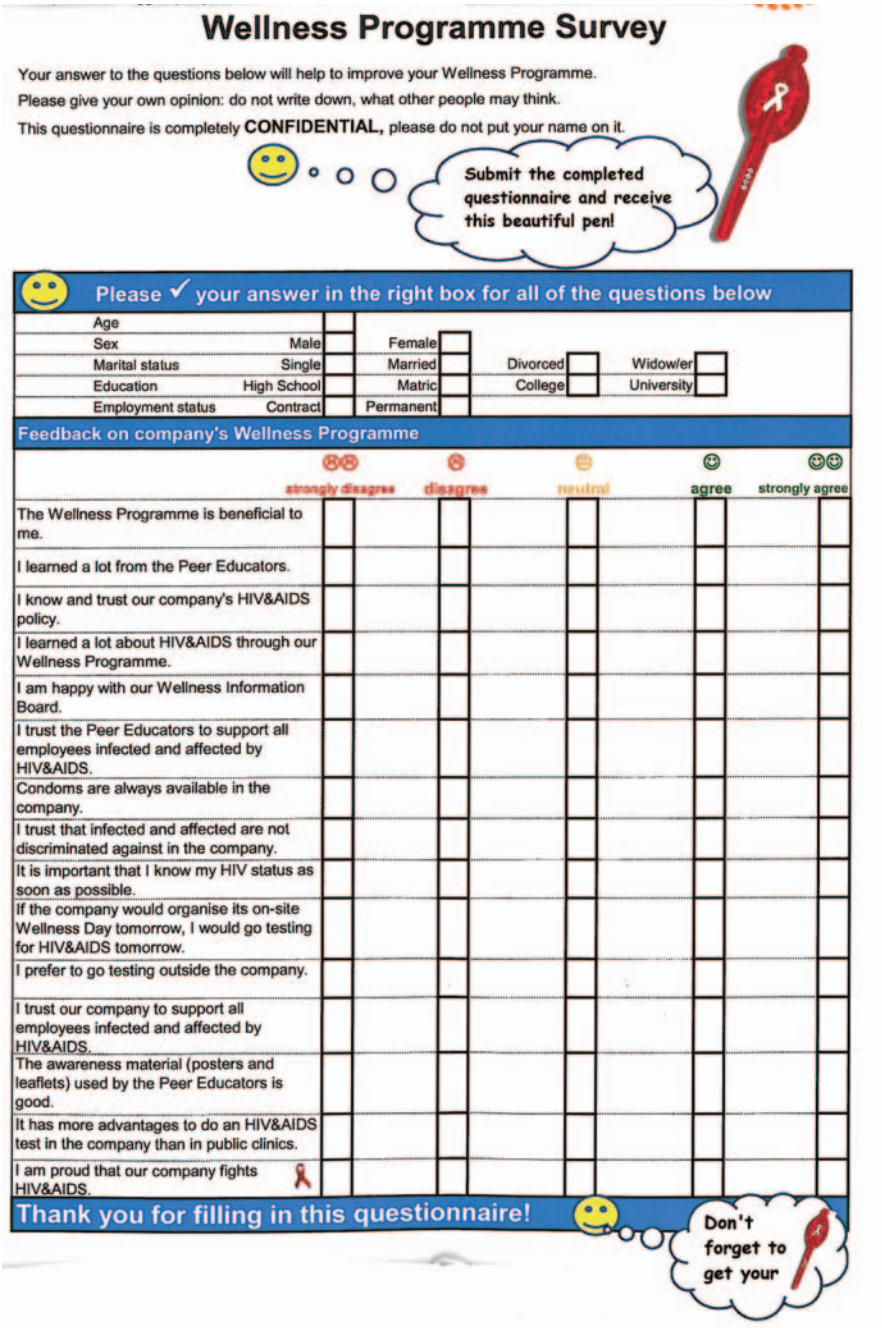
Thornton, R., 2005. The Impact of Incentives on Learning HIV Status: Evidence from a Field Experiment [electronic version]. Harvard University. Retrieved 18.01.2010 from http://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=NEUDC2005&paper_id=199

UNAIDS, 2002. The Private Sector Responds to the Epidemic: Debswana- A Global Benchmark. Case study. Best Practice Collection. Joint United Nations Programme on HIV&AIDS, UNAIDS, Geneva.

Vass, J., Phakati, S., 2006. Managing HIV in the Workplace: Learning from SMEs [electronic version]. Human Science Research Council, HSRC Press, Cape Town.

Annexure A

Questionnaire used in companies V and M



Wellness Programme Survey

Your answer to the questions below will help to improve your Wellness Programme.
Please give your own opinion: do not write down, what other people may think.
This questionnaire is completely **CONFIDENTIAL**, please do not put your name on it.

Submit the completed questionnaire and receive this beautiful pen!

Please ✓ your answer in the right box for all of the questions below

Age							
Sex	Male		Female				
Marital status	Single		Married		Divorced		Widow/er	
Education	High School		Matric		College		University	
Employment status	Contract		Permanent				

Feedback on company's Wellness Programme

	strongly disagree	disagree	neutral	agree	strongly agree
The Wellness Programme is beneficial to me.					
I learned a lot from the Peer Educators.					
I know and trust our company's HIV&AIDS policy.					
I learned a lot about HIV&AIDS through our Wellness Programme.					
I am happy with our Wellness Information Board.					
I trust the Peer Educators to support all employees infected and affected by HIV&AIDS.					
Condoms are always available in the company.					
I trust that infected and affected are not discriminated against in the company.					
It is important that I know my HIV status as soon as possible.					
If the company would organise its on-site Wellness Day tomorrow, I would go testing for HIV&AIDS tomorrow.					
I prefer to go testing outside the company.					
I trust our company to support all employees infected and affected by HIV&AIDS.					
The awareness material (posters and leaflets) used by the Peer Educators is good.					
It has more advantages to do an HIV&AIDS test in the company than in public clinics.					
I am proud that our company fights HIV&AIDS.					

Thank you for filling in this questionnaire!

Don't forget to get your

Annexure B

Flyer used to inform shift B employees about the incentives